

Abstract

It is an object to, in a data storage circuit for storing data, provide a power saving data storage circuit
5 and a data writing method in the data storage circuit, and further, a data storage device.

Thus, in the present invention, reading out of existing data stored in a storage element M is performed prior to performing writing of new data to the storage
10 element M to compare the existing data and the new data. The data storage circuit is configured so that in a case where the existing data and the new data are identical with each other, writing to the storage element M is not performed and, in a case where the existing data and the
15 new data are not identical with each other, writing of the new data to the storage element M is performed. The data storage circuit is formed on a semiconductor substrate to have a data storage device.



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- [続葉有]

(57) 要約: データの記憶を行なうデータ記憶回路において、省電力化したデータ記憶回路及び同データ記憶回路におけるデータ書き込み方法、さらにデータ記憶装置を提供することを課題とする。そこで本発明では、記憶素子Mに新規データの書き込みを行なう前に、同記憶素子Mが記憶している既存データの読み込みを行ない、既存データと新規データとを比較して、既存データと新規データとが一致する場合には記憶素子Mへの書き込みを行わず、既存データと新規データとが不一致の場合には

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| 1...DATA STORAGE CIRCUIT | 5...COMPARISON JUDGMENT UNIT |
| 7s...WRITE SIGNAL | 17s...WRITE IN CONTROL SIGNAL |
| 44s...WRITE ALLOW SIGNAL | 17...WRITE IN CONTROL SIGNAL LINE |
| 44...WRITE ALLOW SIGNAL | 7...WRITE IN SIGNAL LINE |
| 6...NEW DATA INPUT LINE | 15...ROW ADDRESS DATA OUTPUT UNIT |
| 6s...NEW DATA SIGNAL | 13...ROW DECODER |
| 30...EXISTING DATA INPUT LINE | 8...WORD LINE |
| 30s...EXISTING DATA SIGNAL | 9...BIT LINE |
| 14...COLUMN ADDRESS DATA OUTPUT UNIT | 15s...ROW ADDRESS DATA SIGNAL |
| 14s...COLUMN ADDRESS DATA SIGNAL | 12...ROW DRIVE CONTROL UNIT |
| 11...COLUMN DECODER | 2...STORAGE ELEMENT REGION |
| 16...READ OUT CONTROL SIGNAL LINE | M...STORAGE ELEMENT |
| 16s...READ OUT CONTROL SIGNAL | 3...STORAGE UNIT |
| 4...CONTROL SIGNAL GENERATION UNIT | 10...COLUMB DRIVE CONTROL UNIT |